

Automatic Die Separator

DDS2010

High yield and high throughput separation of small die processed with stealth dicing

Reliable separation of small die wafers

The DDS2010 offers an integrated expansion and breaking solution to achieve high-yield and high-throughput die singulation of wafers processed using stealth dicing (SD)*.

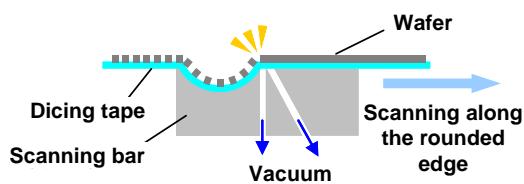
*Stealth dicing is a processing method that focuses a laser within the workpiece to form a modified layer, after which a tape expander is used to separate the die. This processing method is effective in achieving street reduction for small die or rectangular-shaped die such as RFID ICs and line sensors.

High throughput

Scan breaking can be performed at a set speed for the stable separation of any die size. This is faster than 3-point breaking which requires the breaking bar to stop at each line.

Scan breaking

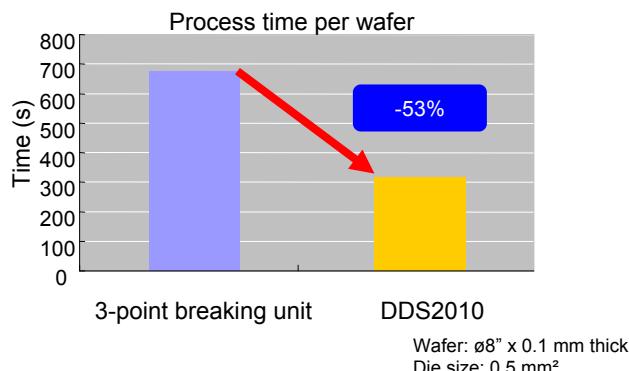
The wafer is bent downward using vacuum suction, which causes the die to separate



Tape expansion and scan breaking

- The scan breaking bar ensures 100% singulation of unseparated die after tape expansion.
- After separation, the wafer is transferred to a tape frame matching the size of the wafer being processed while maintaining the space between the die.

Processing time halved

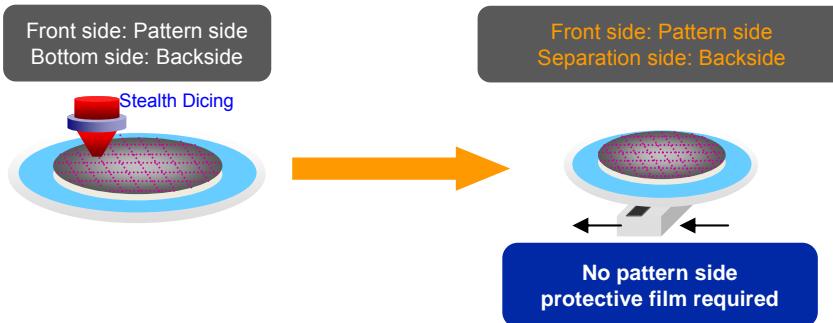


Note: These are DISCO measurements and sample process times.
These results cannot be guaranteed for all conditions

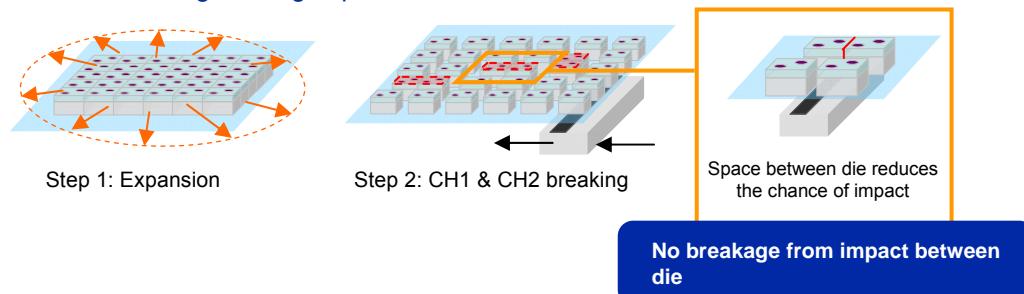
Process flow

Wafer mounting		The workpiece is mounted to a larger tape frame $\varnothing 300$ mm tape frame
Wafer loading	Manual	
Automatic alignment		θ alignment
Expansion		Unseparated die
Scan breaking		
Transfer to a smaller frame		The workpiece is transferred to a tape frame matching the wafer size while maintaining expansion
Unloading	Manual	

No pattern side protective film required during breaking



Reduced die damage during expansion



specification		
Specification	Unit	
Workpiece size	mm	ϕ 8"
Dice size	mm	0.1~0.5(narrow side)
Wafer mounting accuracy X/Y direction (frame mount)	mm	±2.5
Wafer mounting accuracy θ direction (frame mount)	deg	±3°
Machine dimensions (W×D×H)	mm	718×897×1608 (including status indicator)
Machine weight	kg	Approx.450

Environmental conditions

- Use clean, oil-free air at a dew point of -15 °C or less. (Use a residual oil: 0.1ppm. Filtration rating: 0.01 µm/99.5 % or more).
- Keep room temperature fluctuations within ±1 °C of the set value. (Set value should be between 20 - 25 °C).
- Keep cutting water and cooling water at the same (within ±1 °C fluctuations) temperature as the room.
- Use water that has a specific electric conductivity greater than 1µS for cutting.
- The machines should be used in an environment, free from external vibration. Do not install machine near a ventilation opening, heat generation equipment or oil mist generating parts.
- This machine uses water.
In case of water leakage, please install the machine on the floor with sufficient waterproofing and drainage treatments.
- * All the pressures are described using gauge pressures.
- * The above specifications may change due to technical modifications. Please confirm when placing your order.
- * For further information please contact your local sales representatives